REMARKS

The Office examined claims 1, 3-11, 13-19 and rejected same. With this paper, claim 1 is amended, claims 8 and 18 are canceled, and none are added.

Claim Rejections under 35 USC §102/103

The Office rejected pending claims based on the following grounds:

Claims 1, 3-6, 8-11 and 13-19 are rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Nishiguchi et al. (JP 09-324096, JP-096 hereinafter).

Claim 7 is rejected under 35 U.S.C. § 103(a) as being unpatentable over JP-096 in view of Nishiguchi et al. (JP 10-060207, JP-207 hereinafter).

In view of the rejections, Applicant amended claim 1 to incorporate limitations originally in claim 8 (i.e. the film contains a plasticizer (C)) and further specify that the plasticizer contains trimethylolpropane in a composition "0.1 to 50 parts by weight of a plasticizer (C) per 100 parts by weight of the polyvinyl alcohol resin (A)". The amendment is based on the descriptions in page 11, line 22 to page 12, line 12 and Examples 1, 2 and 3 of the specification. No new matter has been added.

By the above amendment, the film of the present invention contains a plasticizer "trimethylolpropane" as an essential component.

JP-096 discloses a water-soluble film comprising (A) a modified polyvinyl alcohol (PVA) having anionic groups and (B) a PVA having a hydrolysis degree of 70-99% by mol. JP-096 also discloses that the water-soluble film can contain a plasticizer, if necessary, to improve the flexibility of the film, and preferable plasticizers are ethylene glycol, glycerin, diglycerin and polyethylene glycol with a low molecular weight (not more than 600) (paragraph [0026]).

However, JP-096 fails to teach using trimethylolpropane as a plasticizer. Thus, the present invention is different from that of JP-096.

The plasticizer trimethylolpropane as claimed is essential in achieving a Tg of no more than 20°C in the PVA film of the present invention, and the lower Tg thus resulted makes the PVA film of the present invention different from the PVA film of JP-096. Usually, the glass transition temperature (Tg) of a polyvinyl acetate is about 30-40°C, and that of completely hydrolyzed polyvinyl alcohol (PVA) is about 70-80°C. Therefore, in both the present invention and JP-096, a film containing partially hydrolyzed PVA has a Tg between (30-40°C) and (70-80°C) (Tg slightly varies according to the measuring methods).

The film of the present invention comprises trimethylolpropane as an essential plasticizer. The film contains 0.1 to 50 parts by weight of the plasticizer per 100 parts by weight of the total of the PVA, which results in the film having a Tg of not more than 20°C. In fact, Tg values of the Examples 1, 2 and 3 of the instant specification are 6, 8 and 8°C, respectively. These samples contain 20 parts by weight of trimethylolpropane per 100 parts by weight of the PVA.

On the other hand, described in the example section of JP-096 (from paragraph [0029]), a PVA film is prepared with 3% glycerin as a plasticizer (paragraph [0039]). Although JP-096 does not disclose the Tg of the PVA film, an estimated Tg of the film is more than 20°C for the reasons presented previously and again shown below.

The elongation values of Examples 1, 2 and 3 of the instant application are 220, 210 and 330%, respectively. On the other hand, elongation values measured at 20°C of Examples 1 to 6 of JP-096 are in the range of 95-140%. The relatively small elongation values in the samples of JP-096 indicate that the glass transition temperatures of these samples must be higher than the temperature under which the elongation was measured (20°C).

In the Office Action, the Examiner states that: "It is noted that the glass transition temperature is not the only factor, which influences on the elongation and the hydroscopic property." (Page 4) However, the Examiner fails to point out what else may influence the

elongation and the hydroscopic property. Instead, the Examiner quotes the instant specification, "the glass transition temperature of not more than 20°C can be achieved by suitably adjusting the kind and amount of the plasticizer, the degree of hydroysis of the PVA resins, the heat treating temperature in the film formation, or the content of water of the films." (page 15, lines 16-20) This quoted statement is exactly what the Applicant accomplished in the present invention - using a novel plasicizer to lower the glass transition temperature of the PVA film.

Because of the low Tg, the PVA film of the present invention has excellent flexibility in ambient temperature and is very useful in packaging of liquid chemicals. If the Tg of the PVA film is more than 20°C, the mechanical strength of the film is significantly affected by the surrounding environment.

Based on the above, it is believed that claim 1 is patentable over JP-096.

Calims 3-6, 9-11, 13-17 and 19 depend directly or indirectly from claim 1. Since claim 1 is believed to be patentable, these claims are also believed to be patentable due to their dependency.

Claim 7 depends from claim 1. Since claim 1 is believed to be patentable, claim 7 is also believed to be patentable due to its dependency.

Applicant respectfully requests the rejections of all pending claims in the instant application be reconsidered and withdrawn.

Conclusion

For all the foregoing reasons, it is believed that all the claims of the instant application are patentable, and their passage to issue is earnestly solicited. Applicant's agent urges the Examiner to call to discuss the present response if anything in the present response is unclear or unpersuasive.

Respectfully submitted,

Date: July 17, 2007

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